

Attorney's Docket: 2002DE138
 Serial No.: 10/684,624
 Group: 1711

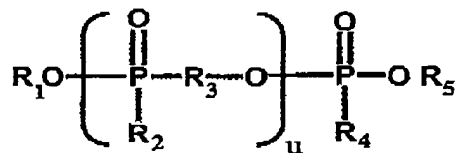
Amendments to the Claims

1. (Currently Amended) A process for improving the aging resistance of a flame-retardant flexible polyurethane foam with high aging resistance, comprising the step of adding to the polyurethane foam a mixture composed of at least one hydroxyalkyl phosphonates-phosphonate and at least one chlorinated phosphoric esters ester, wherein the adding step occurs during production of the polyurethane foam.

2. (Currently Amended) The flame-retardant flexible polyurethane foam process as claimed in claim 1, wherein the mixture comprises from 40 to 60% by weight of the at least one hydroxyalkyl phosphonates-phosphonate and from 60 to 40% by weight of the at least one chlorinated phosphoric esters ester.

3. (Currently Amended) The flame-retardant flexible polyurethane foam process as claimed in claim 1, wherein the mixture comprises from 45 to 55% by weight of the at least one hydroxyalkyl phosphonates-phosphonate and from 55 to 45% by weight of the at least one chlorinated phosphoric esters ester.

4. (Currently Amended) The flame-retardant flexible polyurethane foam process as claimed in claim 1, wherein the at least one hydroxyalkyl phosphonates have phosphonate has the formula I



(I)

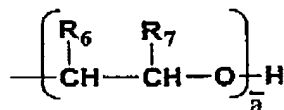
where

u denotes a chain length of from 0 to 10

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Attorney's Docket: 2002DE138
 Serial No.: 10/684,624
 Group: 1711

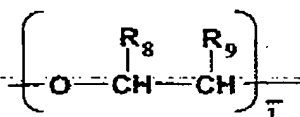
R₁ and R₅ are identical or different, and are a hydroxy-containing radical of the formula II



(II)

R₂ and R₄ are identical or different, and are an alkyl, aryl, or alkylaryl group having from 1 to 12 carbon atoms, and

R₃ is a radical of the formula III



(III)

\bar{a} denotes an average chain length of from 0 to 4,

\bar{I} denotes an average chain length of from 0 to 4, and

R₆, R₇, R₈, and R₉ are identical or different and, independently of one another, are H or an alkyl group having from 1 to 6 carbon atoms.

5. (Currently Amended) The ~~flame-retardant flexible polyurethane foam~~ process as claimed in claim 4, wherein

u denotes a chain length of 0 or 1

\bar{a} denotes an average chain length of from 1 to 2,

\bar{I} denotes an average chain length of from 1 to 2, and

R₂ and R₄ are identical or different and, independently of one another, are an alkyl group having from 1 to 5 carbon atoms, and

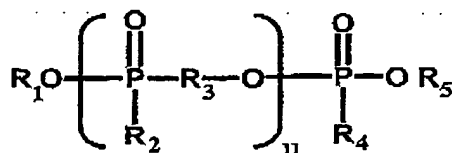
Attorney's Docket: 2002DE138
 Serial No.: 10/684,624
 Group: 1711

R_6 , R_7 , R_8 , and R_9 are identical or different and, independently of one another, are H or an alkyl group having 1 or 2 carbon atoms.

6. (Currently Amended) The ~~flame-retardant flexible polyurethane foam process~~ as claimed in claim 1, wherein the at least one hydroxyalkyl phosphonates are phosphonate is selected from the group consisting of oxethylated methanephosphonic acid, oxethylated ethanephosphonic acid, propoxylated methanephosphonic acid, propoxylated ethanephosphonic acid, oxethylated propanephosphonic acid, propoxylated propanephosphonic acid, diethylene glycol bis(hydroxyalkoxy) methanephosphonate, and ethylene glycol bis(hydroxyalkoxy) ethanephosphonate.

7. (Currently Amended) The ~~flame-retardant flexible polyurethane foam process~~ as claimed in claim 1, wherein the at least one halogenated phosphoric esters are ester is selected from the group consisting of tris(2-chloroethyl) phosphate, tris(2-chloroisopropyl) phosphate, dichloro isopropyl phosphate, trisdichloroisopropyl phosphate, and tetrakis(2-chloroethyl) ethylenediphosphate.

8. (Currently Amended) A process for preparing a flame-retardant flexible polyurethane foams-foam with high aging resistance, comprising the step of reacting organic polyisocyanates with compounds having at least two hydrogen atoms reactive toward isocyanates, with at least one blowing agent with conventional blowing agents, stabilizers, activators, in the presence of at least one halogen-free hydroxyalkyl phosphonates-phosphonate of the formula I and at least one chlorinated phosphoric esters ester



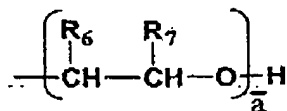
(I)

Attorney's Docket: 2002DE138
 Serial No.: 10/684,624
 Group: 1711

where

u denotes a chain length of from 0 to 10

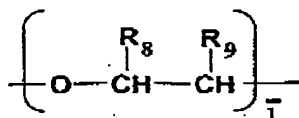
R₁ and R₅ are identical or different, and are a hydroxy-containing radical of the formula II



(II)

R₂ and R₄ are identical or different, and are an alkyl, aryl, or alkylaryl group having from 1 to 12 carbon atoms, and

R₃ is a radical of the formula III



(III)

\bar{a} denotes an average chain length of from 0 to 4,

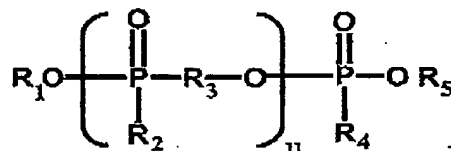
$\bar{1}$ denotes an average chain length of from 0 to 4, and

R₆, R₇, R₈, and R₉ are identical or different and, independently of one another, are H or an alkyl group having from 1 to 6 carbon atoms.

9. (Currently Amended) A process for preparing a flame-retardant flexible polyurethane ~~foams-foam~~ with high aging resistance, comprising the steps of reacting organic polyisocyanates with compounds having at least two hydrogen atoms reactive toward isocyanates, with at least one blowing agent ~~with conventional blowing agents, stabilizers, activators,~~ in the presence of a mixture of

Attorney's Docket: 2002DE138
 Serial No.: 10/684,624
 Group: 1711

at least one halogen-free hydroxyalkyl phosphonates-phosphonate of the formula I
 and at least one chlorinated phosphoric esters-ester

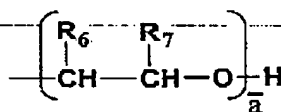


(I)

where

u denotes a chain length of from 0 to 10

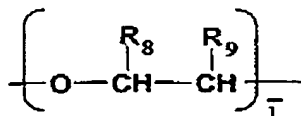
R₁ and R₅ are identical or different, and are a hydroxy-containing radical of the formula II



(II)

R₂ and R₄ are identical or different, and are an alkyl, aryl, or alkylaryl group having from 1 to 12 carbon atoms, and

R₃ is a radical of the formula III



(III)

\bar{a} denotes an average chain length of from 0 to 4,

\bar{i} denotes an average chain length of from 0 to 4, and

Attorney's Docket: 2002DE138
Serial No.: 10/684,624
Group: 1711

R₆, R₇, R₈, and R₉ are identical or different and, independently of one another, are H or an alkyl group having from 1 to 6 carbon atoms.

10. (Currently Amended) The process as claimed in claim 9, wherein ~~mixtures the mixture composed of hydroxyalkyl phosphonates of the formula I and chlorinated phosphoric esters are~~ is used in an amount of from 0.01 to 50 parts by weight, based on the resultant flexible polyurethane foam.

11. (Currently Amended) The process as claimed in claim 9, wherein ~~mixtures composed of hydroxyalkyl phosphonates of the formula I and chlorinated phosphoric esters are the mixture is~~ used in an amount of from 0.5 to 20 parts by weight, based on the resultant flexible polyurethane foam.

12. (Currently Amended) The process as claimed in claim 9, wherein the ~~mixtures of hydroxyalkyl phosphonates of the formula I and chlorinated phosphoric esters are~~ mixture is used in an amount of from 0.5 to 10 parts by weight, based on the resultant flexible polyurethane foam.

13. (Currently Amended) The process as claimed in claim 8, wherein the at least one hydroxyalkyl phosphonates-phosphonate of the formula I ~~comprise compounds~~ is a compound liquid at processing temperature.

14. (Currently Amended) The process as claimed in claim 8, wherein the at least one hydroxyalkyl phosphonates-phosphonate of the formula I ~~comprise compounds~~ is a compound reactive toward isocyanates.

15. (Currently Amended) A flame-retardant flexible polyurethane foam with high improved aging resistance, ~~comprising a mixture composed of at least one hydroxyalkyl phosphonate and at least one chlorinated phosphoric ester made in~~ accordance with the process of claim 1.

Attorney's Docket: 2002DE138
Serial No.: 10/684,624
Group: 1711

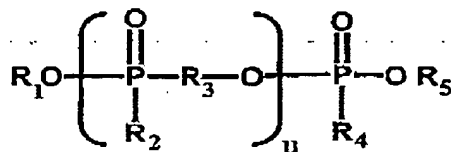
16. (New) A flame-retardant flexible polyurethane foam with improved aging resistance made in accordance with the process of claim 8.

17. (New) A flame-retardant flexible polyurethane foam with improved aging resistance made in accordance with the process of claim 9.

18. (New) The process as claimed in claim 8, wherein the reacting step further comprises adding stabilizers and activators during the reaction.

19. (New) The process as claimed in claim 9, wherein the reacting step further comprises adding stabilizers and activators during the reaction.

20. (New) A process for preparing a flame-retardant flexible polyurethane foam with high aging resistance, comprising the step of reacting at least one organic polyisocyanate with at least one compound having at least two hydrogen atoms reactive toward isocyanates, with at least one blowing agent in the presence of at least one halogen-free hydroxyalkyl phosphonate of the formula I and at least one chlorinated phosphoric ester



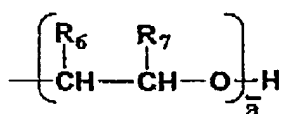
(I)

where

u denotes a chain length of from 0 to 10

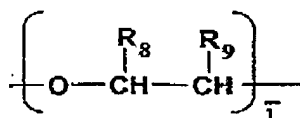
R₁ and R₅ are identical or different, and are a hydroxy-containing radical of the formula II

Attorney's Docket: 2002DE138
 Serial No.: 10/684,624
 Group: 1711



(II)

R_2 and R_4 are identical or different, and are an alkyl, aryl, or alkylaryl group having from 1 to 12 carbon atoms, and
 R_3 is a radical of the formula III



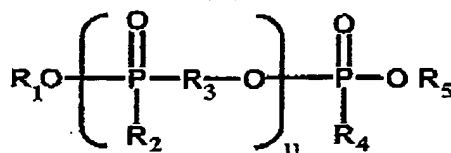
(III)

\bar{a} denotes an average chain length of from 0 to 4,

\bar{I} denotes an average chain length of from 0 to 4, and

R_6 , R_7 , R_8 , and R_9 are identical or different and, independently of one another, are H or an alkyl group having from 1 to 6 carbon atoms.

21. (New) A process for preparing a flame-retardant flexible polyurethane foam with high aging resistance, comprising the steps of reacting at least one organic polyisocyanate with at least one compound having at least two hydrogen atoms reactive toward isocyanates, with at least one blowing agent, in the presence of a mixture of at least one halogen-free hydroxyalkyl phosphonate of the formula I and at least one chlorinated phosphoric ester



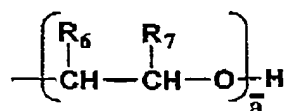
(I)

Attorney's Docket: 2002DE138
 Serial No.: 10/684,624
 Group: 1711

where

u denotes a chain length of from 0 to 10

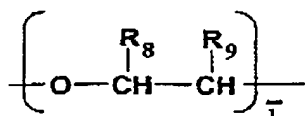
R₁ and R₅ are identical or different, and are a hydroxy-containing radical of the formula II



(II)

R₂ and R₄ are identical or different, and are an alkyl, aryl, or alkylaryl group having from 1 to 12 carbon atoms, and

R₃ is a radical of the formula III



(III)

\bar{a} denotes an average chain length of from 0 to 4,

\bar{I} denotes an average chain length of from 0 to 4, and

R₆, R₇, R₈, and R₉ are identical or different and, independently of one another, are H or an alkyl group having from 1 to 6 carbon atoms.

22. (New) A flame-retardant flexible polyurethane foam with high aging resistance made in accordance with the process of claim 20.

23. (New) A flame-retardant flexible polyurethane foam with high aging resistance made in accordance with the process of claim 21.

Attorney's Docket: 2002DE138

Serial No.: 10/684,624

Group: 1711

24. (New) A flame-retardant flexible polyurethane foam with high aging resistance, comprising a mixture composed of at least one hydroxyalkyl phosphonate and at least one chlorinated phosphoric ester, wherein the at least one chlorinated phosphoric ester is dichloro isopropyl phosphate.

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